

Remarks

Amendments have been made throughout the specification to improve the readability of the Description of the Invention.

Claims 9-13, 15-17, 23-25 and 29-31 have been indicated to contain allowable subject matter and are objected to by the Examiner as being dependent upon a rejected base claim. Claims 14 and 26-28 also have been indicated to be allowable if they would be rewritten to overcome formal rejections under 35 U.S.C. § 112, second paragraph, and to include all the limitations of the claims from which they depend.

Original claims 23, 24, 29, 30 and 31 should depend on claim 19, not claim 18. These claims now are written in independent form, so they are based on original claim 19 rather than original claim 18. Original claim 19 depends on original claim 18.

In claim 14, the overspeed test recited at line 5 of original claim 14 is the overspeed test recited at line 17 of original claim 7, which is the base claim from which claim 14 depends. The ambiguity in the original claims noted by the Examiner has been eliminated by changing the term "gear overspeed test" to "engine overspeed test" in claims 26-28.

In claim 21, the phrase "executing the method for" has been eliminated and structural language has been substituted since claim 21 is a system claim rather than a method claim. This is accomplished by inserting two means-plus-function clauses to replace the method step language.

Claims 9-17 and 23-31, which are indicated to be allowable, have been rewritten in independent form as previously mentioned, although minor editorial changes have been made in these rewritten claims to improve the form. It is believed that allowable claims 9-17 and 23-31 now are in better form for allowance.

Claim 18 has been objected to because the term "overspeed" in line 5 should be preceded by the article "the." The term "overspeed," however, appears at line 14. It is used as an adjective that modifies the plural noun "tests." It is suggested that if the Examiner does not agree with claim 18 in its present form, the objection on page 2 of the Office Action should be clarified in this respect.

Claims 1-8 and 18-22 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the '473 patent in view of the '698 patent. Each of these reference patents is owned by the assignee of the present invention. The co-inventors of the present application are also co-inventors in the '473 patent.

A reconsideration of the rejection of claims 1-8 and 18-22, as they presently are amended, is respectfully requested in view of Applicants' arguments as set forth in the following paragraphs.

The Examiner indicates that the '473 patent does not disclose the step of verifying the target ratio by having an engine overspeed test. It is indicated in the rejection, however, that the '698 patent describes an overspeed evaluation of engine speed to determine an appropriate gear ratio and range state, and that the teachings of the '698 patent could be incorporated into the invention of the '473 patent. The Office Action indicates that this would be obvious to a person of ordinary skill in the art at the time the invention was made. Applicants do not agree with that conclusion. It is Applicants' view that each of Applicants' claims that is rejected for obviousness recites a control system that is fundamentally distinguishable from the teachings of the references, taken alone or in combination. For example, each of claims 1, 7, and 18, which are independent claims, recite limitations dealing with an automatic range shift based on a potential target gear ratio determination and a verification of the target gear ratio by an engine overspeed test. Claim 1 and claim 7 express this distinction in terms of method steps. Claim 18 expresses this distinction in structural terms. Claim 8, which is dependent on claim 7, adds limitations with respect to the low speed latch.

In the case of both the '473 patent and the '698 patent, range shifting is based upon shift lever position and a position of a ratio selection switch located on the shift lever. This is seen at 90 in Figure 1 of the '473 patent and in Figure 2 of the '698 patent. The range section 16 of the transmission of the '698 patent and the auxiliary section 16 of the '473 patent are controlled separately from the main section gearing of the main transmission seen at 14 in each of the '698 and '473 patents.

The teachings of the two reference patents are too disparate to be combined. Even if the teachings of the '698 patent could be incorporated into the transmission disclosed

in the '473 patent, as the Examiner has suggested, the result would not be the same as, nor equivalent to, Applicants' method and system. The overspeed test described in the '698 patent is intended to merely issue a warning signal to the operator that he has selected, under a given set of engine operating conditions, a ratio that will result in an engine overspeed condition when the master clutch is engaged at the completion of the shift. That warning is issued in accordance with the algorithm indicated in column 4, at lines 46-51. The warning, however, is received after the shift ratio selection itself and before the clutch is engaged. There is no intent-to-shift signal that can be used to issue a warning signal before a ratio selection is completed. That clearly is distinguishable from the method and system defined by Applicants' claims where the appropriate range and the potential target ratio are determined automatically using control logic in a transmission controller. One of the inputs for the control logic of Applicants' present invention for making that determination is the information developed by the engine overspeed test. Applicants' invention makes use of the engine overspeed test, together with other variables, such as engine speed, road speed, potential target ratio, etc., to determine the appropriate range. The range shift is controlled and executed automatically if the ratio selected is not in the current range.

Applicants' method and system is fundamentally distinct from a system that would result from a combination of the reference patent citations as suggested in the Office Action. An inappropriate ratio shift in such a design would be announced by the alarm or signal provided by a controller and alarm device (seen at 118 and 122 in Figure 1 of the '698 patent) after the operator completes a ratio selection. An operator of a vehicle incorporating a transmission system consisting of the combined teachings of the references would merely respond to an alarm issued by the system if an overspeed test is not satisfied. In contrast, the method and system of Applicants' invention achieves an appropriate range in the first instance when a shift is initially commanded. The overspeed test of Applicants' invention is not used merely to issue an alarm. The overspeed test of is one of several inputs to the controller for selecting an appropriate range based in part on the target ratio.

In the case of Applicants' invention, the overspeed test, together with other information based on the operating variables, will eliminate certain ratios from a set of

possible ratios. The elimination of those ratios is done in accordance with the results of the overspeed test.

The control logic of the present invention will eliminate automatically those ratios that will result in engine overspeeding as target ratio is automatically determined. This determination is made by a control algorithm using the control logic at 32 in Applicants' Figure 1 in response to the various inputs at 34 in Figure 1. This is fundamentally distinct from a transmission system in which range selection is based on shift lever position and a driver operated selector switch position.

In making an unobviousness determination, the use of hindsight wisdom should be avoided. It is well established that a motivation or suggestion in at least one of multiple prior art reference citations must be present before a conclusion of obviousness can be reached. In the present case, neither of the cited references, in the view of Applicants, provides such a motivation or suggestion.

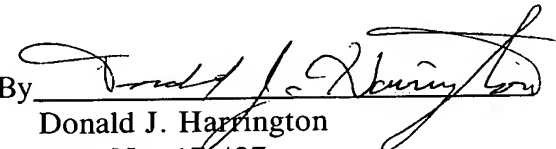
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Applicants have attempted to emphasize the distinctions between the present invention and the reference patent teachings by making the amendments to the claims included in this paper. It is requested that claims 1-8 and 18-22, as presently amended, be grouped with allowable claims 9-17 and 23-31 and that a Notice of Allowance be issued.

Respectfully submitted,

DOUGLAS A. HUGHES, et al.

By


Donald J. Harrington
Reg. No. 17,427
Attorney for Applicant

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BROOKS KUSHMAN P.C.
1000 Town Center, 22nd Floor
Southfield, MI 48075-1238
Phone: 248-358-4400
Fax: 248-358-3351